4. EDI TRANSLATION SOFTWARE

An essential component of any EDI implementation is the EDI translation software package, which converts data from a proprietary application system format to a standard EDI format and transmits it to the trading partner. EDI translation software also converts standard EDI messages received from trading partners into a file that can be used to update in-house application systems.

In the process of creating and transmitting EDI messages to trading partners, EDI translation software typically performs the following three functions:

- **Mapping:** The EDI translation software maps outgoing data from an organization-specific format to an EDI standard format.
- **Translating:** The EDI translation software converts the mapped data to a format that can be sent to an trading EDI partner, adding all standard enveloping and delimiter protocols.
- **Communicating**: The EDI translation software dials the network and sends the mapped and translated EDI message to the trading partner.

For incoming messages, the EDI translation software performs the same three functions in reverse. Exhibit 4-1, EDI Translation Process, depicts the process of sending and receiving EDI messages.

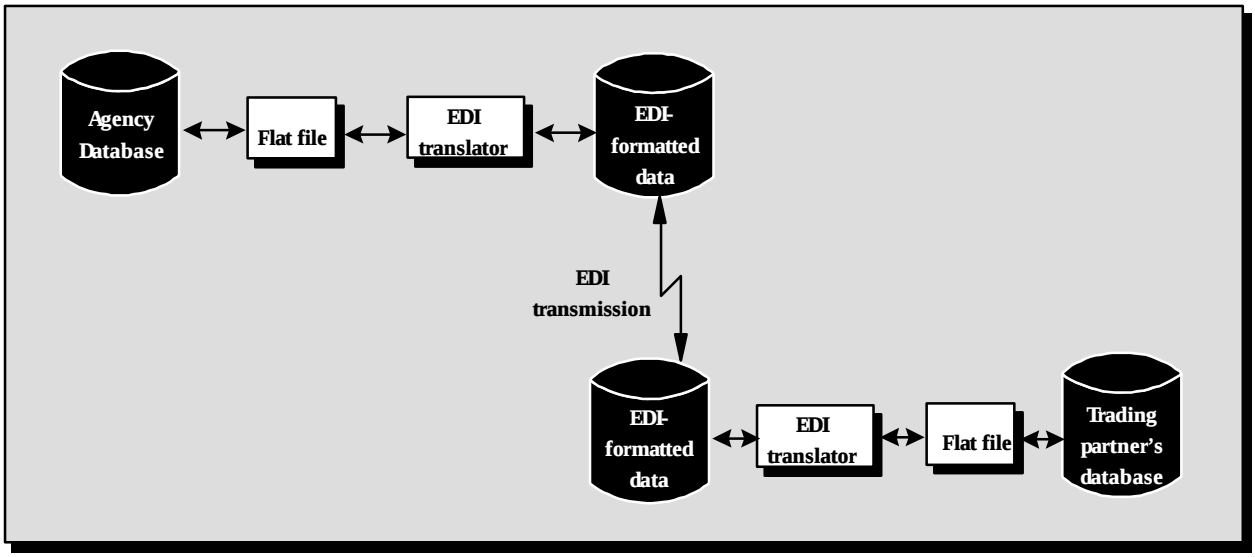

Exhibit 4-1: EDI Translation Process

4.1. EDI Translation Software Alternatives

There are three options available for EDI translation software:

- **Commercial Off-The-Shelf (COTS) Software:** As the demand for EDI applications has grown in recent years, both the quantity and quality of COTS software packages available today have notably increased. These software packages typically provide full mapping, translation, and communication capabilities and include ANSI ASC X12, EDIFACT, and other EDI standards.

  The advantages of using a COTS software package are that these packages are readily available, easy to use, and relatively inexpensive. Software vendors also provide additional services, such as training, if required. However, in-house application systems may need to be modified to accommodate the transfer of data to and from the EDI translation software.

- **Custom-Developed Software**: The use of custom-developed software has long been the traditional answer to implementing applications at large organizations and government agencies. The development of custom software can be performed internally, outsourced to a third party vendor or consultant, or completed by a combination of internal and external resources.

  The main advantage of custom-developed EDI translation software is that it can be created to exactly meet the functional and technical needs of the organization. Moreover, it can incorporate all of an organization's specific business rules and procedures.

  The main disadvantage of custom-developed EDI translation software is that the organization will need to devote a considerable amount of financial and human resources to its development. Also, as a custom software development effort must evolve through the entire system development lifecycle, it will take several months longer to implement a custom-developed EDI translation software solution than a COTS software package. The organization will also be responsible for maintaining and enhancing the software when ANSI ASC X12 standards change and if additional transaction sets are needed in future EDI applications.

- **Integrated EDI Module Available with Application Systems**: With the increasing use of EDI, many third party software vendors have developed EDI modules that are integrated with their procurement, receiving, and financial management software packages. These EDI modules automatically extract the required data from in-house application systems, map and translate it into ANSI ASC X12 transaction sets, and transmit the transaction sets to vendors. Similarly, when vendors send EDI messages, the EDI module accepts the messages from a network, edits and validates the data received, and updates their in-house application systems.
  The main advantage of this option is that the EDI module will be integrated with in-house application systems which will simplify the exchange of information with external entities. As such, the organization will not have to incur the cost of modifying its in-house application systems to send and receive data from EDI messages.

However, the cost of acquiring and implementing an application system with an integrated EDI modules can be prohibitive. In addition, not all vendors offer integrated EDI modules with their procurement, receiving, and financial management software packages and, therefore, the organization will have a limited choice of packages to meet its functional and technical requirements.

An organization should, above all, consider the functional and technical requirements of the EDI application being implemented to determine the best alternative.

4.2. EVALUATING AND SELECTING AN EDI TRANSLATION SOFTWARE PACKAGE

The following four-step approach is recommended for evaluating and selecting an EDI translation software package:

1. **Identify EDI Translation Software Requirements and Evaluation Criteria**: The first step in selecting an EDI translation software package is to determine the functional and technical requirements that the package will need to meet. Once a list of requirements has been determined, the organization can compare software packages against it and thereby determine the best alternative.

   A list of key features that are typically sought in EDI translation software packages is presented in Section 4.3, Features of EDI Translation Software Packages. An organization should tailor this list to suit the EDI application being implemented.

2. **Identify EDI Translation Software Packages Available**: The next step in selecting a package is to identify all software packages available for the EDI implementation. The source of such lists would depend upon whether a COTS package or an application package with an integrated EDI module is to be implemented. Popular magazines, such as EDI World, and the Logistics Management Institute (LMI) periodically publish lists of software vendors.

3. **Develop Short List of EDI Translation Software Packages:** As the preliminary list of possible EDI translation software packages tends to be fairly long, it would be an extremely time consuming task to evaluate all the packages on this list. Therefore, the preliminary list should be shortened using predetermined criteria. The recommended criteria for this purpose are described below:

   - **Platform:** The organization should first determine on what hardware/technical platform the EDI translation software will run. The choice of platform is generally a function of volume and speed requirements, and system integration needs. A small pilot application may be easily and inexpensively implemented on a Personal Computer (PC) based platform, but data will have to be transferred back and forth to application systems. A UNIX- or mainframe-based package will be much more

expensive and may provide more power and functionality than necessary for a small EDI implementation. The organization should, ensure that the selected hardware platform has adequate processing capacity to handle their peak volumes. There should also be an easy path for upward migration on both the hardware and the EDI translation software.

- **Mapping, Translating, and Communicating**: The EDI translation software package should, at the very least, provide mapping, translating, and communication functionality. Some packages do not have communications capabilities and require the purchase of a separate software package for this purpose.

- **Installed Base:** The installed base is the number of copies of the software package that are currently in use. A high installed base provides an indication of the stability and soundness of both the vendor and the EDI translation software package.

The organization should contact software vendors to obtain the above listed information from them. The results of the short listing process may be documented using a table such as the one presented in Exhibit 4-2, Sample EDI Translation Software Package Short List.

Vendor Name	Software Package Name	Operating Systems Supported	Mapping, Translating, Communicating	Installed Base	Notes
Vendor 1	Package 1	DOS, UNIX	YES	750	
Vendor 2	Package 2	Windows	YES	25	UNIX version in test
Vendor 3	Package 3	DOS, Windows	YES	4,500	Migration path available from DOS/Windows version to UNIX
	Package 4	UNIX	YES	2,500	

Exhibit 4-2: Sample EDI Translation Software Package Short List

4. **Compare EDI Translation Software Packages and Make Final Selection:** The organization should then undertake a more detailed evaluation of the EDI translation software packages remaining on the short list based on the requirements determined in Step 1. Vendors should be contacted to obtain literature and evaluation copies of their packages. The results of this analysis should be documented in a table such as the one presented in Exhibit 4-3, Sample EDI Translation Software Package Evaluation Matrix. The organization should select and implement the EDI translation software package that best meets their requirements.

Vendor Name	Vendor 1	Vendor 2	Vendor 3	Vendor 4	
Software Package Name	Package 1	Package 2	Package 3	Package 4	Package 5
Hardware Platforms Supported					
User Friendly					

Vendor Name	Vendor 1	Vendor 2	Vendor 3	Vendor 4	
Software Package Name	**Package 1**	**Package 2**	**Package 3**	**Package 4**	**Package 5**
EDI Standards - ANSI ASC X12 - EDIFACT					
Mapping and Translating - Code conversion - Non-standard codes - Constants - Computed fields - Multiple maps - Speed - Error handling					
Different Maps for Each Trading Partner					
Communications - Communications Capability - VAN compatibility - Multiple VANs - FACNET					
Data Edits and Validations					
Message Routing					
Flat File Interfaces					
Screen Interface					
Data Edits and Validations					
Document Turnaround					
Message Routing					
Encryption					
Trading Partner Profiles					
Document Validation, Acknowledgment, and Reconciliation - FA creation - FA reconciliation					
Security					
Archiving - Automatic - Retrieve Outgoing - Retrieve Incoming					

Vendor Name	Vendor 1	Vendor 2	Vendor 3	Vendor 4	
Software Package Name	**Package 1**	**Package 2**	**Package 3**	**Package 4**	**Package 5**
Unattended Mode - Data transmission - Mapping/translating - Archiving					
Reports - Translation - Trading Partner - Unattended operations					
Documentation					
Installed Base					
Vendor Services - Software support - 800 number - Standards upgrades					
Price - Package price - Annual maintenance fee - Standards Upgrades - Cost of platform Upgrades - Vendor training charges - Vendor support charges - Vendor support includes					
Available through GSA Schedule					

Exhibit 4-3: Sample EDI Translation Software Package Evaluation Matrix

4.3. FEATURES OF EDI TRANSLATION SOFTWARE PACKAGES

Presented below are key features that an organization should consider when comparing and evaluating EDI translation software packages:

1. **Hardware Requirements**: EDI translation software can operate on a variety of platforms such as a PC, UNIX-based system, and mainframe. An organization should carefully assess its current and future information needs to determine its hardware requirements. Many software vendors will offer assistance in this task.

2. **User Friendly**: EDI translation software should be user friendly and easy to use for both experienced and inexperienced users.

3. **EDI Standards:** The EDI translation software should have the ability to support the following standards at a minimum:

   - ANSI ASC X12 (multiple versions)

   - EDIFACT (multiple versions)

4. **Mapping and Translating:** The EDI translation software should be capable of mapping and translating application system data to and from EDI standard transaction sets.

5. **Different Maps for Each Trading Partner**: The EDI translation software should be able to maintain and translate documents using different maps for each trading partner. This feature is particularly important when trading partners use different implementation conventions for the same transaction set.

6. **Communications:** The EDI translation software should have the ability to communicate with trading partners through a leased line or dial up connection via the following:

   - Major commercial Value Added Network (VANs)

   - Federal Acquisition Computer Network (FACNET) through Network Entry Points (NEPs)

7. **Data Entry Interfaces:** The EDI translation software should have the following data entry interface capabilities:

   - **Flat File Interface:** The EDI translation software should have the ability to accept data from in-house application systems as a flat ASCII file and reformat it into a standard EDI transaction set. Similarly, it should be able to accept incoming EDI messages from trading partners and translate them into a flat ASCII file for use by in-

house application systems. The organization should be able to specify the layout of the flat ASCII files for incoming and outgoing EDI message data.

- ➢ **Screen Interface**: The EDI translation software should allow users to enter data through formatted data entry screens. The data should be edited according to user specifications and converted to the appropriate standard EDI transaction sets. The EDI translation software should also allow users to view incoming messages using formatted screens.

8. **Data Edits and Validations:** The EDI translation software should be able to validate both incoming and outgoing (screen-entered and flat file data) against ANSI ASC X12 formats and user-defined data edits. Such edits may include checking code qualifier fields against a subset of the ANSI ASC X12 codes and calculated fields.

9. **Document Turnaround:** The EDI translation software should have the capability to use data from an incoming transaction set to create a new outgoing transaction set. For example, the user should be able use data from an incoming response to request for quotation transaction set to automatically fill in similar fields on an outgoing purchase order. The EDI translation software should also allow the user to add data, such as the ship to address, to the new transaction set as necessary.

10. **Message Routing:** The EDI translation software should have the ability to route both incoming and outgoing messages to their proper destination. For example:

    - ➢ An incoming invoice transaction set should automatically be routed to the finance system, while a ship notice transaction set should be routed to the receiving system.

    - ➢ The user should be able to specify that a purchase order is to be sent to a single vendor via a VAN, or broadcast to the entire vendor community via FACNET.

11. **Encryption**: The EDI translation software should be able to encrypt outgoing messages using appropriate government or user-specified standards. It should also allow users to receive encrypted messages and decipher them correctly.

12. **Trading Partner Profiles:** The EDI translation software should be able to accept trading partner profile information via a flat file interface. This is particularly important if a large number of trading partners are to be set up within the software.

13. **Document Validation, Acknowledgment, and Reconciliation:** The EDI translation software should be able to check the syntax of an incoming transmission for compliance with the appropriate EDI standards, and automatically send and receive functional acknowledgments. It should also be able to produce simple reports listing outgoing and incoming transmissions with functional acknowledgments, so that users can identify messages that have not been acknowledged.

14. **Security:** The EDI translation software should allow organizations to create IDs and passwords to control access to the software. The EDI translation software should also allow organizations to control access to specific functions within the software, such as setting up new trading partners and printing reports.

15. **Archiving:** The EDI translation software should allow users to archive received and transmitted documents or files for a user-defined period of time. The EDI translation software should also allow archived files to be easily retrieved, updated, and retransmitted in the event of a system failure.

16. **Unattended Mode:** The EDI translation software should be able to map, translate, send, and receive data using a predefined schedule without support staff present during non-business hours.

17. **Reports:** The EDI translation software should have the ability to produce formatted or ad hoc hardcopy reports of outgoing and incoming transmissions. Users should be able to print reports of partially updated transaction sets, as well as transaction sets that have been sent or received. These reports should also list any errors and exceptions with an appropriate message.

18. **Documentation:** User manuals should be provided by the vendor along with the EDI translation software. The user manuals should provide information on how to perform all functions, as well as how to investigate and resolve errors.

19. **Installed Base:** The installed base is the number of copies of the software package that are currently in use. The organization should select a package with a reasonably high installed base as this provides an indication of the stability and soundness of both the vendor and the software.

20. **Vendor Services**: The vendor should provide the following services:

    - **Training:** Training includes classroom education sessions, online tutorials, workbooks, and any other materials requested by the organization. While most PC-based packages are fairly simple to install and use, it would be desirable to have training available.

    - **Support:** The support services provided by the vendor should include trained personnel to assist in solving software-related problems via telephone or on-site visits.

21. **Price:** The organization should purchase EDI translation software that meets their functional and technical requirements at the best possible price. The following information should be considered in determining the total cost of an EDI translation software package:

    - Government or commercial (as appropriate) list price for a single copy license

- ➢ Annual maintenance fees
- ➢ Cost of standards upgrades
- ➢ Cost of upgrades (e.g., from a PC-based platform to a UNIX environment)
- ➢ Vendor training and support changes
- ➢ Other miscellaneous costs

22. **Availability through GSA Schedule:** The EDI translation software should be available through a GSA schedule, if the organization is a government agency.

An organization should examine each of the features described above, and determine which ones are required for their particular EDI application. It should also classify the selected features as mandatory or desirable. EDI translation software packages that do not have one or more of the mandatory features may then be eliminated from further analysis, and the remaining packages can be compared on the availability of desirable features.